In re Application of: Michal Amit et al.
Serial No.: 10/581,455
Filed: June 1, 2006
Office Action Mailing Date: March 2, 2009

Examiner: TON, Thaian N
Group Art Unit: 1632
Attorney Docket: 32059

**In the claims:**

1-51. (Cancelled)

52. (Currently Amended) An isolated human embryonic ~~stem cell or~~ stem cell line carrying a disease-causing mutation in a genomic polynucleotide sequence thereof.

53-54. (Cancelled)

55. (Currently Amended) The isolated human embryonic ~~stem cell or~~ stem cell line of claim 52, wherein said disease-causing mutation is selected from the group consisting of a missense mutation, a nonsense mutation, a frameshift mutation, a readthrough mutation, a promoter mutation, a regulatory mutation, a deletion, an insertion, an inversion, a splice mutation and a duplication.

56. (Currently Amended) The isolated human embryonic ~~stem cell or~~ stem cell line of claim 52, wherein said disease-causing mutation is selected from the group consisting of a missense mutation, a nonsense mutation, a frameshift mutation, a readthrough mutation, a promoter mutation, a regulatory mutation, a deletion, an insertion, an inversion, a splice mutation and a duplication.

57. (Currently Amended) The isolated human embryonic ~~stem cell or~~ stem cell line of claim 52, wherein said disease-causing mutation is selected from the group consisting of the W1282X as set forth in SEQ ID NO:24 associated with cystic fibrosis, the PAX3-del28 (510del28 in SEQ ID NO:34) associated with van Waardenburg syndrome, more than 50 (CTG) repeats as set forth in SEQ ID NO:22 associated with Myotonic dystrophy and the 1505C→T (P377L) as set forth in SEQ ID NO:21 associated with metachromatic leukodystrophy.

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58. (Currently Amended) The isolated human embryonic ~~stem cell or~~ stem cell line of claim 52, wherein said stem cell is maintained in an undifferentiated state for at least 41 passages.

59. (Currently Amended) The ~~isoalted~~ isolated human embryonic ~~stem cell or~~ stem cell line of claim 52, wherein said stem cell exhibits a karyotype of 46, XX or 46, XY following at least 30 passages.

60. (Currently Amended) The isolated human embryonic ~~stem cell o~~r stem cell line of claim 52, wherein said stem cell exhibits pluripotent capacity following 40 passages.

61. (Withdrawn) An isolated embryoid body comprising a plurality of cells at least some of which carry a disease-causing mutation in a genomic polynucleotide sequence thereof.

62. (Withdrawn) The isolated embryoid body of claim 61, wherein said embryoid body is derived from a stem cell or a stem cell line.

63. (Withdrawn) The isolated embryoid body of claim 62, wherein said stem cell is of human origin.

64. (Withdrawn and Currently Amended) The ~~isoalted~~ isolated stem cell or stem cell line of claim 62, wherein said stem cell exhibits a karyotype of 46, XX or 46, XY following at least 30 passages.

65. (Withdrawn) The isolated embryoid body of claim 61, wherein said disease-causing mutation is selected from the group consisting of a missense mutation, a nonsense mutation, a frameshift mutation, a readthrough mutation, a promoter mutation, a regulatory mutation, a deletion, an insertion, an inversion, a splice mutation and a duplication.

66. (Withdrawn) The isolated embryoid body of claim 61, wherein said disease-causing mutation is associated with a genetic disorder selected from the group consisting of cystic fibrosis (CF), myotonic dystrophy (DM), van Waardenburg syndrome (WS), metachromatic leukodystrophy (MLD), Gorlin disease, Huntington's disease (HD), spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD).

67. (Withdrawn) The isolated embryoid body of claim 61, wherein said disease-causing mutation is selected from the group consisting of the W1282X as set forth in SEQ ID NO:24 associated with cystic fibrosis, the PAX3-del28 (510del28 in SEQ ID NO:34) associated with van Waardenburg syndrome, more than 50 (CTG) repeats as set forth in SEQ ID NO:22 associated with Myotonic dystrophy and the 1505C→T (P377L) as set forth in SEQ ID NO:21 associated with metachromatic leukodystrophy.

68. (Withdrawn) The isolated embryoid body of claim 61, wherein said embryoid body is capable of differentiating into cells of the embryonic ectoderm, embryonic endoderm and/or embryonic mesoderm.

69. (Withdrawn) An isolated differentiated cell, tissue or organ carrying at least one disease-causing mutation in a genomic polynucleotide sequence thereof.

70. (Withdrawn) The isolated differentiated cell, tissue or organ of claim 69, wherein said differentiated cell, tissue or organ is of human origin.

71. (Withdrawn) The isolated differentiated cell, tissue or organ of claim 69, wherein said disease-causing mutation is selected from the group consisting of a missense mutation, a nonsense mutation, a frameshift mutation, a readthrough mutation, a promoter mutation, a regulatory mutation, a deletion, an insertion, an inversion, a splice mutation and a duplication.

72. (Withdrawn) The isolated differentiated cell, tissue or organ of claim 69, wherein said disease-causing mutation is associated with a genetic disorder selected from the group consisting of cystic fibrosis (CF), myotonic dystrophy (DM), van Waardenburg syndrome (WS), metachromatic leukodystrophy (MLD), Gorlin disease, Huntington's disease (HD), spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD).

73. (Withdrawn) The isolated differentiated cell, tissue or organ of claim 69, wherein said disease-causing mutation is selected from the group consisting of the W1282X as set forth in SEQ ID NO:24 associated with cystic fibrosis, the PAX3-del28 (510del28 in SEQ ID NO:34) associated with van Waardenburg syndrome, more than 50 (CTG) repeats as set forth in SEQ ID NO:22 associated with Myotonic dystrophy and the 1505C→T (P377L) as set forth in SEQ ID NO:21 associated with metachromatic leukodystrophy.

74. (Previously Presented) A method of identifying an agent suitable for treating a disorder associated with at least one disease-causing mutation, comprising:

(a) generating a human embryonic stem cell line or a human embryoid body carrying the at least one disease-causing mutation;

(b) subjecting cells of said human embryonic stem cell line or said human embryoid body to differentiating conditions to thereby obtain differentiated cells exhibiting an effect of the at least one disease-causing mutation and;

(c) exposing said differentiated cells to a plurality of molecules and identifying from said plurality of molecules at least one molecule capable of regulating said effect of the at least one disease-causing mutation on said differentiated cells, said at least one molecule being the agent suitable for treating the disorder associated with the at least one disease-causing-mutation.

75. (Previously Presented) The method of claim 74, wherein said human embryoid body is derived from a human embryonic stem cell or a human embryonic stem cell line.

76-77. (Cancelled)

78. (Currently Amended) The method of claim 74, wherein said human embryonic stem cell line exhibits a karyotype of 46, XX or 46, XY following at least 30 passages.

79. (Previously Presented) The method of claim 74, wherein said disease-causing mutation is selected from the group consisting of a missense mutation, a nonsense mutation, a frameshift mutation, a readthrough mutation, a promoter mutation, a regulatory mutation, a deletion, an insertion, an inversion, a splice mutation and a duplication.

80. (Previously Presented) The method of claim 74, wherein said disease-causing mutation is associated with a genetic disorder selected from the group consisting of cystic fibrosis (CF), myotonic dystrophy (DM), van Waardenburg syndrome (WS), metachromatic leukodystrophy (MLD), Gorlin disease, Huntington's disease (HD), spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD).

81. (Previously Presented) The method of claim 74, wherein said disease-causing mutation is selected from the group consisting of the W1282X as set forth in SEQ ID NO:24 associated with cystic fibrosis, the PAX3-del28 (510del28 in SEQ ID NO:34) associated with van Waardenburg syndrome, more than 50 (CTG) repeats as set forth in SEQ ID NO:22 associated with Myotonic dystrophy and the 1505C→T (P377L) as set forth in SEQ ID NO:21 associated with metachromatic leukodystrophy.

82. (Previously Presented) The method of claim 74, further comprising a step of isolating lineage specific cells from said embryoid body prior to step (b).

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83. (Previously Presented) The method of claim 82, wherein said isolating lineage specific cells is effected by sorting of cells contained within said embryoid body via fluorescence activated cell sorter.

84. (Previously Presented) The method of claim 82, wherein said isolating lineage specific cells is effected by a mechanical separation of cells, tissues and/or tissue-like structures contained within said embryoid body.